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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,670	Applicant(s) CHRISTENSEN ET AL.	
	Examiner Andrew Lai	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/23/06,12/17/04*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Eexaminer's Note

Throughout this Office Action, unless otherwise noted, the following notations are used for identifying the place of cited texts in a reference:

c:m-n: "column c lines m-n" for (usually) a US patent;
p.p&m-n: "page p line m-n" for (usually) a foreign patent or paten application
[p]/m-n: "paragraph p lines m-n" for (usually) a US patent application publication

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boduch et al (US 6,667,954, Boduch hereinafter) in view of Humphrey et al (US 6,246,681, Humphrey hereinafter).

Boduch provides a "method and apparatus for selecting the better of two or more copies of any given cell from the received cell streams" (2:28-30).

Regarding claim 1, Boduch discloses *a fault-tolerant router* (see "a cell-oriented redundant switching system", Abstract line 3 and fig. 1), *comprising:*

a first router matrix card (fig. 1 item 107 and see "there are two copies of a redundant switch network, switch network copy 107", 3:38-39), *said first router matrix card receiving input digital audio data streams* (fig. 1 item 105 depicted as *input* to "copy

107 and see "signals 105 ... are characterized as composite <u>cell streams</u>", 3:48-49) *and generating, from said input digital audio data streams, a first output digital audio streams* (fig. 1 item 111 depicted as *output* from "copy 107" and see "signals ... 111 ... are characterized as composite <u>cell streams</u>", 3:48-49, and see more specifically "After signal 105 is <u>input</u> to switch network copy 107, the signal is routed through switch network copy 107 and <u>output</u> as signal 111", 3:59-62);

a second router matrix card (fig. 1 item 108 and see "there are two copies of a redundant switch network, ... and switch network copy 108", 3:38-39), *said second router matrix card receiving said digital audio data streams* (fig. 1 item 106 depicted as *input* to "copy 108 and see "signals ... 106 ... are characterized as composite <u>cell streams</u>", 3:48-49, noting also fig. 1 "Ingress Port Module 104" which "splits the signal 103 into two <u>identical</u> signals, signal 105 and 106", 3:42-44) *and generating, from said input digital audio data streams, a second output digital audio streams* (fig. 1 item 112 depicted as *output* from "copy 108" and see "signals ... 112 ... are characterized as composite <u>cell streams</u>", 3:48-49, and more specifically "After signal 106 is <u>input</u> to switch network copy 108, the signal is routed through switch network copy 108 and <u>output</u> as signal 112 3:62-64);

an output card (fig. 1 "Egress Port Module 109") *coupled to said first router matrix card* ("copy 107") *and said second router matrix card* ("copy 108"), *said output card receiving said first set of output digital audio streams from said first router matrix card and said second set of output digital audio streams from said second router matrix card* (refer still to fig. 1 and see "Signals 111 and 112 are then passed to the egress port

module 109", 3:64-65), *providing, as an output therefrom, a selected one of said first and second sets of output digital audio streams* (refer still to fig. 1 and see "The egress port module 109 determines whether signal 111 or signal 112 will be sent on to the customer's network as output signal 113", 3:65-67), *and switching from said selected one of said first and second sets of output digital audio data streams to an unselected one of said first and second sets of output digital audio data streams upon detecting an error in said selected one of said first and second sets of output digital audio data streams* (still refer to figs. 1 and 2 and see "the best cell copy selection ASIC 110 invokes the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network. The term 'better' refers to the cell that arrives at egress port 109 of FIG. 1 with fewest errors, and the selection is made on a cell-by-cell basis" 10:35-40, noting that the term cell-by-cell basis will inevitably involving *switching from* previously *selected streams* to previously *unselected streams*, depending on which of the two copies of the next cell has fewest errors in it).

Regarding claim 2, *wherein said output card* (fig. 1 "egress port module 109") *further comprises a switching circuit* ("copy selector 206" of fig. 2, which "depicts a block diagram of the cell stream alignment best cell copy selection ASIC 110", 4:44-46, refer to fig. 1 for said ASIC 110) *coupled to receive said first set of output digital audio data streams from said first router matrix card* (fig. 1 data stream 111 from "switch network copy 107) *and said second set of output digital audio data streams from said second router matrix card* (fig. 1 data stream 112 from "switch network copy 108), *said switching circuit switching from said selected one of said first and second sets of*

encoded output digital audio data streams to said unselected one of said first and second sets of output digital audio data streams (refer to fig. 2 and see "the copy selector to select the better of the two copies of each cell to be sent on to the customer network", 10:36-38) *in response to assertion of a switching signal* (refer to figs. 1 and 2 and see "the best cell copy selection ASIC 110 <u>invokes</u> the copy selector 206 to select", 10:35-36, noting that said <u>invoking</u> will have to involving in issuing an *assertion*).

Regarding claim 3, *wherein said output card* (fig. 1 "ASIC 110" within "egress port module 109") *further comprises: a first/second* error *check circuit* (fig. 2 "cell overhead extractor/monitor 201", which is the first circuit within the "best cell copy selection ASIC 110" of fig. 1) *coupled to receive said first/second set of output digital audio streams from said first/second router matrix card* (see "The cell overhead extractor/monitor 201 may also provide <u>error counts</u> from each switch network copy", 5:2-4, noting further that Boduch also discloses "The best cell copy selection ... can alternatively be implemented by discrete hardware components", 4:5-8, implying said "cell overhead extractor/monitor 201" may be separated into discrete *first/second circuit* of two circuits, each handling *first/second set of output digital audio streams*); *and*

a logic circuit (a necessary *logic circuit* in said "best cell copy selection ASIC 110" for the ASIC to perform the function to be cited below) *to receive error signal from said first* error *check circuit and a second* error *check signal from said second* error *check circuit, said logic circuit determining, based upon said first* error *signal received from said first* error *check circuit and said second* error *signal receive from said second* error *check circuit, whether to assert said switching signal* (see "the best cell copy

selection ASIC 110 invokes the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network. The term 'better' refers to the cell that arrives at egress port module 109 of FIG. 1 with fewest errors", 10:35-39, noting that said invoke or *assert* will have to be performed necessarily by a *logic circuit* in said ASIC 110).

Regarding claim 4, *wherein said output card* (fig. 1 "ASIC 110" within "egress port module 109") *further comprises: a first/second delay circuit* (fig. 2 "CDV FIFO function 204" and see "The CDV FIFO function 204 is used to absorb cell delay variation imparted by a single switch network", 8:26-27) *coupled to receive said first/second set of output digital audio data streams from said first/second router matrix card* (noting in fig. 2 said "CDV FIFO function 204" receiving data stream 220/221, which are the same as data stream 111/112 from "switch network copies 107/108");

said switching circuit (fig. 2 "copy selector 206") *coupled to receive a first set of output digital audio data streams from said first router matrix card and said second set of output digital audio data streams from said second router matrix card via said first delay circuit and said second delay circuit, respectively* (refer to fig. 2 and see "the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network", 10:36-38, and fig. 2 depicting that the selector receives data streams *via* said "CDV FIFO function 204").

Regarding claim 5, *wherein said logic circuit asserts said switching signal upon detection of said error in said selected one of said first and second sets of output digital audio data streams* (see fig. 6B for logic at step 605 "cell from network copy A arrives

with bit error status bit set to FALSE?" and the "No" branch thereof, indicating copy A has error and leading to possibly switching to copy B at step 609) requiring no error *is present in said unselected one of said first and second sets of output digital audio data streams upon detection* (see fig. 6B for logic at step 609 in above "No" branch "cell from network copy B arrives with bit error status bit set to FALS?" and the "Yes" branch thereof, leading to step 610 "cell from copy B selected", while the "No" branch of step 609 branching to step 607 "cell from preferred copy selected", which "is the switch network copy from which the last cell was sent on to the customer network", 11:57-59).

(It should be noted that although Boduch does not teach said switching <u>regardless</u> *whether an error is present in said unselected one of the first and second sets of output streams*, it is entirely an issue of design choice. Here is an analysis. As disclosed in present claim, the outcome of said "*regardless ...*" is two folds. ***One*** is the case wherein the *unselected streams* indeed <u>has no errors</u>, which is taught directly as cited above. ***The other*** is the case wherein the *unselected stream* <u>has errors</u>, in this case, Boduch will go back to "the switch network copy from which the last cell was sent" as cited above, noting that in this case said copy, copy A, to be sent also has error in it, equivalent to sending copy B <u>as present claim sets forth</u>. Since Applicant does not have an express teaching with regard to what particular technical advantage or improvement the claimed feature would have over Boduch's design choice offering equally adequate result, it would have been obvious to one skilled in the art at the time of the invention to have chosen either approach with the same performance).

Regarding claim 6, *wherein said logic circuit asserts said switching signal upon detection of said error in said selected one of said first and second sets of output digital audio data streams* (see fig. 6B for logic at step 605 "cell from network copy A arrives with bit error status bit set to FALSE?" and the "No" branch thereof, indicating copy A has error and leading to possibly switching to copy B at step 609) *only if an error is not present in said unselected one of said first and second sets of output digital audio data streams* (see fig. 6B for logic at step 609 in above "No" branch "cell from network copy B arrives with bit error status bit set to FALS?" and the "Yes" branch thereof, leading to step 610 "cell from copy B selected", while the "No" branch of step 609 branching to step 607 "cell from preferred copy selected", which "is the switch network copy from which the last cell was sent on to the customer network", 11:57-59).

Regarding claim 7, *wherein said switching circuit switches back from said unselected one of said first and second sets of output digital audio data streams to said selected one of said first and second sets of output digital audio data streams upon assertion of said switching signal* (see "the selection is made on a cell-by-cell basis", 10:39-40, which, following the steps in fig. 6B, will necessarily switch back-and-forth).

Regarding claim 8, *wherein said logic circuit* (the necessary *logic circuit* in said "best cell copy selection ASIC 110" for the ASIC to perform the function cited above for claim 3 and the function to be cited below) *asserts said switching signal upon detection of an error in said unselected one of said first and second sets of output digital audio data streams* (see "the best cell copy selection ASIC 110 invokes the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network.

The term 'better' refers to the cell that arrives at egress port module 109 of FIG. 1 with <u>fewest errors</u>", 10:35-39, noting that said <u>invoke</u> or *assert* bi-directionally: *selected* ↔ *unselected*).

Regarding claim 9, *wherein said logic circuit* (the necessary *logic circuit* in said "best cell copy selection ASIC 110" for the ASIC to perform the function cited above for claim 3 and the function to be cited below) *asserts said switching signal upon detection of an error in said unselected one of said first and second sets of output digital audio data streams* (see fig. 6B for logic at step 605 "cell from network copy A arrives with bit error status bit set to FALSE?" and the "No" branch thereof, indicating copy A has error) *only if no error is present in said selected one of said first and second of output digital streams* (see fig. 6B for logic at step 609 in above "No" branch "cell from network copy B arrives with bit error status bit set to FALS?" and the "Yes" branch thereof, leading to step 610 "cell from copy B selected", while the "No" branch of step 609 branching to step 607 "cell from preferred copy selected", which "is the switch network copy from which the last cell was sent on to the customer network", 11:57-59).

Regarding claim 10, *wherein said logic circuit* (the necessary *logic circuit* in said "best cell copy selection ASIC 110" for the ASIC to perform the function cited above for claim 3 and the function to be cited below) *asserts said switching signal upon detection of an error in said unselected one of said first and second sets of output digital audio data streams* (see fig. 6B for logic at step 605 "cell from network copy A arrives with bit error status bit set to FALSE?" and the "No" branch thereof, indicating copy A has error) requiring *no error is present in said selected one of said first and second of output*

digital streams (see fig. 6B for logic at step 609 in above “No” branch “cell from network copy B arrives with bit error status bit set to FALS?” and the “Yes” branch thereof, leading to step 610 “cell from copy B selected”, while the “No” branch of step 609 branching to step 607 “cell from preferred copy selected”, which “is the switch network copy from which the last cell was sent on to the customer network”, 11:57-59).

(It should be noted that although Boduch does not teach said switching <u>regardless</u> *whether an error is present in said unselected one of the first and second sets of output streams*, it is entirely an issue of design choice. Here is an analysis. As disclosed in present claim, the outcome of said "*regardless ...*" is two folds. ***One*** is the case wherein the *unselected streams* indeed <u>has no errors</u>, which is taught directly as cited above. ***The other*** is the case wherein the *unselected stream* <u>has errors</u>, in this case, Boduch will go back to “the switch network copy from which the last cell was sent” as cited above, noting that in this case said copy, copy A, to be sent also has error in it, equivalent to sending copy B <u>as present claim sets forth</u>. Since Applicant does not have an express teaching with regard to what particular technical advantage or improvement the claimed feature would have over Boduch's design choice offering equally adequate result, it would have been obvious to one skilled in the art at the time of the invention to have chosen either approach with the same performance).

For all claims discussed hereinabove, the features Boduch does not disclose are ***1.*** said *input/output* cell streams to/from said switch network copies 107/108 are <u>*parity encoded streams*</u> and/or ***2.*** said error based on which said selection/switching is made is <u>*a parity error*</u>.

However, in general *parity encoding* is a well known, well established and widely used error detection/correction technique in the art, as Newton's Telecom Dictionary (16th Edition, February 2000, ISBN # 1-57820-053-9) recites, "**Parity** A process for detecting whether bits of data (parts of characters) have been altered during transmission of the data. Since data is transmitted as a stream of bits with values of one or zero, each character of data composed of, say seven bits has another bit added to it. The value of that bit is chosen so that either the total number of one bits is always even if Even Parity error correction is to be obeyed or always Odd if Odd Parity error correction is chosen" (p.632, right column, the entry for **Parity**). Therefore, it would have been obvious, in general, for one skilled in the art at the time of the invention to have easily thought of incorporating *parity encoding* and *parity error checking*, as an alternative or addition, to Boduch already disclosed error checking/correction method in order to provide more ways of data stream selection. It should be noted that such addition would necessarily result in *M parity encoded output streams* from *N parity encoded input streams*.

Below is an example of use of such *parity encoding* technique.

Humphrey discloses "a system for selecting one of two or more parallel planes of data" (Abstract lines 1-2) which "allows planes to be switched on a packet-by-packet basis" (1:65-67) wherein data are generated using a "data formatter circuit 84" (10:59 and fig. 4) comprising using *parity error* checking and *parity encoding* (see fig. 4, "parity check 120" logic and "DS0 parity generation 126" circuits, noting especially the feature of 9 input streams thereto and 10 output streams therefrom).

Therefore, it would have also been obvious, in particular, to one of ordinary skill in the art at the time of the invention to modify the method/system of Boduch by adding the particular parity generating and checking method of Humphrey to Boduch in order to provide a better system "that substantially eliminates or reduces disadvantages and problems associated with previously developed systems and methods for data plane selection", as pointed out by Humphrey (1:39-42).

Regarding claim 11, *for a router* (see "a cell-oriented redundant switching system", Abstract line 3 and fig. 1) *having an input card* (fig. 1 "ingress port module 104"), *a first router matrix card and a second router matrix card* (fig. 1 items 107 and 108 and see "there are two copies of a redundant switch network, switch network copy 107 and switch network copy 108", 3:38-39), *said input card transmitting a set of N input digital audio data streams* (refer to fig. 1 item 103 and see "a signal 103 comes into the redundant switching system 100 to an ingress port module 104. Signal 103 may be a SONET <u>stream</u> consisting of multiple <u>STS-N</u> payloads. The ingress port module 104 splits the signal 103", 3:39-43) *to said first router matrix card and said second router matrix card* (still refer to fig. 1 and see "The ingress port module 104 splits the signal 103 into two identical signals, signal 105 and signal 106", 3:42-44, and "signal 105 and signal 106 are passed to redundant switch network copies 107 and 108, respectively", 3:51-52), *said first router matrix card outputting a first set of M output digital audio data streams and said second router matrix outputting a second, replicated set of M output digital audio data streams* (refer to fig. 1 and see "After signal 105 is <u>input</u> to switch network copy 107, the signal is routed through switch network copy 107 and <u>output</u> as

signal 111. After signal 106 is input to switch network copy 107, the signal is routed through switch network copy 108 and output as signal 112", 3:59-64), *a method of selecting one of said first and second sets of M output digital audio data streams as the output of said router* (refer still to fig. 1 and see "The egress port module 109 determines whether signal 111 or signal 112 will be sent on to the customer's network as output signal 113", 3:65-67), *comprising:*

propagating said first set of M output digital audio data streams through at least one component of said firs router matrix card (fig. 1 depicting input stream 105 passing through network copy 107);

each one of said at least one component of said first router matrix card adding at least one bit of information to said first set of M output digital audio data streams propagating therethrough (refer to fig. 2 which "depicts a block diagram of the cell stream alignment best cell copy selection ASIC 110", 4:44-45, note "Cell Over Head Extract/Monitor 201" and see "The cell overhead extractor/monitor 201 may also provide error counts for each stream emanating from each switch network copy", 5:2-4, noting that said error counts must be based on *bit of information* being *added to said first set of data streams* by the *component* prior to said cell overhead extractor/monitor, as implied "the composite cell stream errors being determined by devices external to the best cell copy selection [ASIC 110 of fig. 1] itself", 6:6-8, noting that the only possible *component* external thereto will have to be within "switch network copies 107 and 108" as depicted in fig. 1);

propagating said second set of M output digital audio data streams through at least one component of said second router matrix card (fig. 1 depicting input stream 106 passing through network copy 108);

selecting one of said first and second sets of M output digital audio data streams as the output of said router based upon a comparison of said at least one bit of information added to said first set of M output digital audio data streams to said at least one bit of information added to said second set of M output digital audio data streams (still refer to figs. 1 and 2 and see "the best cell copy selection ASIC 110 invokes the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network. The term 'better' refers to the cell that arrives at egress port 109 of FIG. 1 with <u>fewest errors</u>, and the <u>selection</u> is made on a <u>cell-by-cell basis</u>" 10:35-40, noting that the term <u>cell-by-cell basis</u> will inevitably involving *switching from* previously *selected streams* to previously *unselected streams*, depending on which of the two copies of the next cell has <u>fewest errors</u> in it).

Regarding claim 12, *wherein said at least one bit of information is comprised of at least one status bit* (see fig. 6B logic steps 605, 606 and 609 all discloses checking if "cell from network copy A/B arrives with bit error <u>status bit</u> set to FALSE?").

Regarding claim 13, *wherein said at least one bit of information is comprised of at least one health bit* (see fig. 6B logic steps 605, 606 and 609 all discloses checking if "cell from network copy A/B arrives with bit error <u>status bit</u> set to FALSE?", which status comprises also the condition of cell sequence number "out of seq" as depicted fig. 3 block 301).

Regarding claim 14, *wherein selecting one of said first and second sets of M output digital audio data streams as the output of said router further comprises:*

determining a first/second sum by adding said at least one bit added to said first/second set of M output digital audio data streams (refer to fig. 2 and see "The cell overhead extractor/monitor may also provide error counts for each stream emanation from each switch network copy", 5:2-4, which error counts will, as obvious to one skilled in the art, necessarily involve *determining a sum by adding said bit*).

Selecting one of said first and second sets of N output digital audio data streams as the output of said router based upon a comparison of said first sum to said second sum (see "the best cell copy selection ASIC 110 invokes the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network. The term 'better' refers to the cell that arrives at egress port module 109 of FIG. 1 with fewest errors", 10:35-39, noting such determination for fewest errors will have to first make *a comparison of the* error *sums* of the two streams).

Regarding claim 15, *the method of claim 11, and further comprising:*

checking a *first and second set of M output digital audio data streams for errors* (refer to fig. 2 and see "The cell overhead extractor/monitor 201 may also provide error counts for each stream emanating from each switch network copy", 5:2-4)

selecting one of said first and second sets of M output digital audio data streams as the output of said router (refer to fig. 1 and see "The egress port module 109 determines whether signal 111 or signal 112 will be sent on to the customer's network as out put signal 113", 3:64-67) *based upon the presence of errors in said first set of N*

output digital audio data streams (refer to figs. 1 and 2 and see "the best cell copy selection ASIC 110 invokes the copy selector 206 to select the better of the two copies of each cell to be sent on to the customer network. The term 'better' refers to the cell that arrives at egress port 109 of FIG. 1 with fewest errors, and the selection is made on a cell-by-cell basis" 10:35-40) *... and said comparison of said at least one bit of information added to said first set of M output digital audio data streams to said at least one bit of information added to said second set of M output digital audio data streams* (refer to fig. 6B and see steps 605, 606 and 609 showing checking and comparing "dell from network copy A or B arrives with bit error status bit set to FALSE?").

Regarding claim 16, *the method of claim 15, wherein selecting one of said first and second sets of M output digital audio data streams as the output of said router further comprises:*

determining a first/second sum by adding said at least one bit added to said first/second set of M output digital audio data streams (refer to fig. 2 and see "The cell overhead extractor/monitor may also provide error counts for each stream emanation from each switch network copy", 5:2-4, which error counts will, as obvious to one skilled in the art, necessarily involve *determining a sum by adding said bit*).

selecting, one of said first and second sets of M output digital audio data streams as the output of said router (refer to fig. 1 and see "The egress port module 109 determines whether signal 111 or signal 112 will be sent on to the customer's network as out put signal 113", 3:64-67) *based on ... and a comparison of said first sum to said second sum* (see "the best cell copy selection ASIC 110 invokes the copy selector 206

to select the better of the two copies of each cell to be sent on to the customer network. The term 'better' refers to the cell that arrives at egress port module 109 of FIG. 1 with fewest errors", 10:35-39, noting such determination for fewest errors will have to first make *a comparison of the* error *sums* of the two streams).

Boduch does not disclose the following features:

for claims 11, 14-16, that said "cell-oriented redundant switching system" (*router*) is a *broadcast* router;

for claim 15, *encoding parity information into said first/second set of N input digital audio data streams prior to transmission of said input digital audio data streams to said first/second router matrix of said first/second router matrix card, said first/second set of M output digital audio data streams output from said first/second router matrix being a first/second set of M parity encoded digital audio data streams;*

selecting parity encoded streams based upon ... the presence of parity errors in said second set of N output streams ...

for claim 16, said selecting *based upon the presence of parity errors in said first/second set of M parity encoded output data streams.*

Humphrey discloses "a system for selecting one of two or more parallel planes of data" (Abstract lines 1-2) which "allows planes to be switched on a packet-by-packet basis" (1:65-67) consisting of an "optical fiber-capable telecommunication switch system 10 (fig. 1) further comprising the following features:

Regarding claims 11, 14-16, said switch system being a *broadcast router* (refer to fig. 1 and see "Fiber optic connection unit 14 receives digitally encoded optical data

from fiber optic conductor 18, performs broadcast switching of the data streams received from fiber optic conductor 18", 4:5-8).

It would have also been obvious to one of ordinary skill in the art at the time of the invention to modify the method/system of Boduch by adding the broadcast feature of Humphrey to Boduch in order to provide a better system "that substantially eliminates or reduces disadvantages and problems associated with previously developed systems and methods for data plane selection", as pointed out by Humphrey (1:39-42).

Regarding claim 15, *encoding parity information into said first/second set of N input digital audio data streams prior to transmission of said input digital audio data streams to said first/second router matrix of said first/second router matrix card, said first/second set of M output digital audio data streams output from said first/second router matrix being a first/second set of M parity encoded digital audio data streams;* and *selecting parity encoded streams based upon … the presence of parity errors in said second set of N output streams.*

Regarding claim 16, said selecting *based upon the presence of parity errors in said first/second set of M parity encoded output data streams*

(see fig. 4 for "parity check 120" circuit and "DSO parity generation 126" circuits, noting especially the feature of 9 input streams thereto and 10 output streams therefrom, and see further "DS-0 parity generation is performed by DS-0 parity generation circuit 126. This DS-0 format data is transmitted in a 10-bit parallel data stream from data formatter circuit 84", 11:23-26).

Also, in general *parity encoding* is a well known, well established and widely used error detection/correction technique in the art, as Newton's Telecom Dictionary (16th Edition, February 2000, ISBN # 1-57820-053-9) recites, "**Parity** A process for detecting whether bits of data (parts of characters) have been altered during transmission of the data. Since data is transmitted as a stream of bits with values of one or zero, each character of data composed of, say seven bits has another bit added to it. The value of that bit is chosen so that either the total number of one bits is always even if Even Parity error correction is to be obeyed or always Odd if Odd Parity error correction is chosen" (p.632, right column, the entry for **Parity**). Therefore, it would have been obvious, in general, for one skilled in the art at the time of the invention to have easily thought of incorporating *parity encoding* and *parity error checking*, as an alternative or addition, to Boduch already disclosed error checking/correction method in order to provide more ways of data stream selection. It should be noted that such addition would necessarily result in *M parity encoded output streams* from *N parity encoded input streams*.

It would have also been obvious, in particular, to one of ordinary skill in the art at the time of the invention to modify the method/system of Boduch by adding the particular parity generating and checking method of Humphrey to Boduch in order to provide a better system "that substantially eliminates or reduces disadvantages and problems associated with previously developed systems and methods for data plane selection", as pointed out by Humphrey (1:39-42).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,740,157 provides an method and mechanism for implementing automatic protection switching wherein module or data parity failures at each stage of the data stream result in switchover of disabled data path or module.

US 6,088,329 provides a fault tolerant subrate switching method comprising selecting time slots from two different unit handling the same data stream based on units faulty status comprising data parity bit for error checking.

US 6,879,559 provides router line card protection using one-for-N redundancy comprising independently receiving duplicate input and performing data integrity check by computing parity and framing words to determine data validity.

US 4,213,201 discloses a modular time division switching system comprising using added bit in user data to indicate error conditions.

US 6,330,221 discloses a failure tolerant high density dial router using redundant subsystem resources wherein the redundant resources are switched active when a failure is detected in the active subsystem.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lai whose telephone number is 571-272-9741. The examiner can normally be reached on M-F 7:30-5:00 EST, Off alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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